

WHAT IS CLAIMED IS:

- 1 1. A system for purifying fluid, said system comprising:
2 a filtration canister for filtering particulates from the fluid; and
3 a separate evaporation canister for removing liquid contaminants by evaporation.
- 1 2. The system of claim 1, wherein said fluid comprises oil.
- 1 3. The system of claim 1, wherein said fluid comprises hydraulic fluid.
- 1 4. The system of claim 1, wherein said filtration canister comprises:
2 a filter element for filtering the particulates from the fluid; and
3 a head for providing an upper seal to the filtration canister and a means for
4 mounting the filtration canister.
- 1 5. The system of claim 4, wherein the head comprises:
2 a compression ring for pressing against a portion of the filter element;
3 a first orifice for receiving oil from an engine;
4 a second orifice for receiving filtered oil; and
5 a gasket for sealing the head against the filtration canister.

1 6. The system of claim 4, wherein said filtration canister further comprises:
2 a threaded stud for securing the filtration canister and the head; and
3 a sampling valve for sampling fluid from the filtration canister.

1 7. The system of claim 1 further comprising a shut-off valve for preventing flow of
2 fluid into the filtration canister.

1 8. The system of claim 1, wherein the evaporation canister comprises:
2 a head for sealing an upper portion of the evaporation canister;
3 an evaporator for receiving filtered fluid from the filtration canister; and
4 a heating wand for heating the fluid to release liquid contaminants.

1 9. The system of claim 8, wherein the evaporator is manufactured as a cup with
2 exterior ridges for impeding the flow of the fluid.

1 10. The system of claim 1, wherein the evaporation canister comprises:
2 a visual indicator for alerting a user as to whether electrical power is supplied to
3 the heating wand; and
4 a conduit for receiving and removing vaporized liquid contaminants from the
5 evaporationcanister.

1 11. The system of claim 1 further comprising a metering valve located between the
2 filtration canister and the evaporation canister.

1 12. A filtration canister for filtering particulates from a fluid, said filtration canister
2 comprising:

3 a filter element for removing the particulates from the fluid;

4 a container for receiving the filter element and the fluid;

5 a head for sealing an upper portion of the container;

6 a threaded stud for securing the head and the container; and

7 a centering spring for securing the filter element around the threaded stud.

1 13. The filtration canister of claim 12, further comprising:

2 a sampling valve for allowing a sample of the fluid to be removed from the
3 container;

4 a fluid impervious washer for preventing fluid from bypassing the filter element;

5 a sealing gasket for providing support to the fluid impervious washer;

6 a resistance spring for providing pressure to the sealing gasket, fluid impervious
7 washer, and a lower portion of the filter element.

1 14. The filtration canister of claim 13, wherein the sealing gasket is formed of
2 stainless steel and the fluid impervious washer is formed of nitrile material.

1 15. The filtration canister of claim 12, wherein the container is formed of Aluminum
2 Kone Drawing Quality cold rolled steel and wherein the container is plated with Commercial
3 Bright Nickel Plating.

1 16. The filtration canister of claim 12, wherein the head is formed of 319 Cast
2 Aluminum Alloy.

1 17. The filtration canister of claim 12, wherein the head comprises:
2 a compression ring for pressing against an upper portion of the filter element;
3 a first orifice for receiving oil from an engine;
4 a second orifice for receiving filtered oil; and
5 a gasket for sealing the head against the filtration canister.

1 18. The filtration canister of claim 12, wherein the head is secured to the threaded
2 stud via a head cap, and wherein the head cap is secured to the head via an E-ring.

1 19. An evaporation canister for separating liquid contaminants from fluid, said
2 evaporation canister comprising:

3 an evaporator cup for receiving fluid, the evaporator cup including a large
4 substantially flat lower surface for increasing the surface area of the fluid;

5 a container for receiving fluid and housing the evaporator;

6 a head for sealing an upper portion of the container;

7 a heating wand for heating the fluid in the evaporator cup; and

8 wherein the fluid flows underneath the heating wand and spreads to increase the
9 surface area of the fluid, thereby facilitating evaporation of the liquid contaminants.

1 20. The evaporation canister of claim 19, wherein the container is formed of
2 Aluminum Kone Drawing Quality cold rolled steel and plated with Commercial Bright Nickel
3 Plating, and wherein the head is formed of 319 Cast Aluminum Alloy.

1 21. The evaporation canister of claim 19, wherein the head comprises an orifice for
2 receiving wires that supply electrical power to the heating wand, and wherein the wires also
3 supply electrical power to a visual indicator for alerting a user as to whether the heating wand is
4 receiving electrical power.

1 22. A method for purifying fluid, said method comprising the steps of:
2 providing fluid to a filtration canister;
3 filtering particulates from the fluid via a filter element;
4 transmitting the filtered fluid from the filtration canister to a separate evaporation
5 canister;
6 heating the filtered fluid to remove liquid contaminants; and
7 removing the vaporized liquid contaminants from the evaporation canister.

1 23. The method of claim 22 further comprising the step of lowering the flow in the
2 evaporation canister to reduce the amount of heat necessary to remove the liquid contaminants.

1 24. The method of claim 23 further comprising the step of utilizing a metering valve
2 to reduce the flow in the evaporation canister.

1 25. The method of claim 22, wherein the filtering comprises the steps of:
2 entering an outer portion of the filtration canister;
3 flowing through the filter element to remove the particulates from the fluid; and
4 accumulating in a central portion of the filtration canister for transmission to the
5 evaporation canister.